

CLAIMS:

1. A woodworking machine comprising:

a base assembly defining a cutting zone;

5 operative structure movably coupled to the base assembly;

a movable cutting tool mounted on the operative structure and configured to cut workpieces in the cutting zone when the operative structure is moved toward the cutting zone;

a motor configured to move the cutting tool;

10 a detection system configured to detect one or more dangerous conditions between a person and the cutting tool; and

15 a reaction system configured to stop the movements of the cutting tool and the operative structure in response to the detection of a dangerous condition by the detection system, where the reaction system is coupled to the operative structure and configured to selectively engage both the cutting tool and the base assembly.

2. The woodworking machine of claim 1, where the reaction system includes a first braking element configured to engage the cutting tool, and a second braking element configured to engage the base assembly.

20 3. The woodworking machine of claim 2, where the first and second braking elements are coupled together.

4. The woodworking machine of claim 3, where the first and second braking elements are pivotally coupled together.

5 5. The woodworking machine of claim 2, where the reaction system includes a biasing mechanism configured to urge the first braking element into engagement with the cutting tool.

10 6. The woodworking machine of claim 5, where the biasing mechanism is configured to urge the second braking element into engagement with the base assembly.

15 7. The woodworking machine of claim 5, where the first braking element is configured to urge the second braking element into engagement with the base assembly.

20 8. The woodworking machine of claim 2, where the reaction system includes a biasing mechanism configured to urge the second braking element into engagement with the base assembly, and where the first braking element is configured to releasably restrain the second braking element against the urging of the biasing mechanism.

9. The woodworking machine of claim 8, where the second braking element includes anchor structure, and where the first braking element includes grappling structure configured to releasably grip the anchor structure.

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10. The woodworking machine of claim 2, where the reaction system includes a restraining mechanism configured to releasably restrain both the first braking element from engagement with the cutting tool and the second braking element from engagement with the base assembly.

11. The woodworking machine of claim 10, where the restraining mechanism includes a fusible member.

12. The woodworking machine of claim 1, where the cutting tool is rotatable and has rotational energy when rotating, and where the reaction system is configured to convert at least a portion of the rotational energy of the cutting tool into a braking force between the operative structure and the base assembly.

13. The woodworking machine of claim 1, where the machine is a miter saw.

14. A miter saw comprising:

a base assembly;

a pivot arm assembly movably coupled to the base assembly;

a rotatable blade mounted on the pivot arm assembly;

5 a motor configured to drive the blade;

a detection system configured to detect accidental contact between a person and the blade; and

a reaction system coupled to the pivot arm assembly and configured to stop both the movement of the pivot arm assembly and the rotation of the blade upon the detection of the at least one dangerous condition by the detection system;

where the reaction system includes a first braking element configured to engage and stop the movement of the blade, and a second braking element configured to engage the base assembly and stop the movement of the pivot arm assembly.

15. The miter saw of claim 14, where the first braking element is configured to urge the second braking element into engagement with the base assembly.

16. The miter saw of claim 14, where the first and second braking elements are pivotally coupled together.

17. The miter saw of claim 14, where the blade has rotational energy when rotating, and where the reaction system is configured to convert at least a portion of the rotational energy of the blade into a braking force between the pivot arm assembly and the base assembly.

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18. A miter saw comprising:

a base assembly;

a pivot arm assembly movably coupled to the base assembly;

a rotatable blade mounted on the pivot arm assembly;

a detection system configured to detect at least one dangerous condition between a person and the blade; and

reaction means for stopping both the movement of the pivot arm assembly and the rotation of the blade upon the detection of the at least one dangerous condition by the detection system.

19. The miter saw of claim 18, where the reaction means includes a first braking means for stopping movement of the pivot arm assembly, and a second braking means for stopping rotation of the blade.

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20. The miter saw of claim 18, where the blade has rotational energy when rotating, and where the reaction means includes means for converting at least a portion of the rotational energy of the blade into a braking force between the pivot arm assembly and the base assembly.